

<110> Karunanandaa, Balasulojini  
 Yu, Jaehyuk  
 Kishore, Ganesh M.

<120> NUCLEIC ACID MOLECULES AND OTHER MOLECULES ASSOCIATED  
 WITH STEROL SYNTHESIS AND METABOLISM

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<150> US 60/142,981

<151> 1999-07-12

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Leu Ala Ser Asp Ser Arg Leu Arg Pro Asp Arg Met Ala Leu Glu Lys	
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Tyr Pro Val Gly Arg Thr Arg Val Thr Leu Lys Arg Asp Gly Val Val
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 Pro Asn Val Glu Ser Lys Glu Val Ala Gln Met Leu Ala Val Val Arg  
 75 80 85  
 tgg ttt att tct act ttg aga tct caa tac tgc tct aga agc gaa tcg 761  
 Trp Phe Ile Ser Thr Leu Arg Ser Gln Tyr Cys Ser Arg Ser Glu Ser  
 90 95 100

atg ggt tct gaa aag aag cct ttg aac cca ttc ttg ggt gag gta ttt Met Gly Ser Glu Lys Lys Pro Leu Asn Pro Phe Leu Gly Glu Val Phe 105 110 115	809
ggt gga aag tgg aaa aat gat gag cat cca gag ttt ggt gaa acg gtt Val Gly Lys Trp Lys Asn Asp Glu His Pro Glu Phe Gly Glu Thr Val 120 125 130 135	857
ctt tta agt gag caa gtt tca cat cat cca cct atg aca gca ttt tcg Leu Leu Ser Glu Gln Val Ser His His Pro Pro Met Thr Ala Phe Ser 140 145 150	905
att ttt aat gaa aaa aat gat gtt tct gtt caa gga tac aat caa att Ile Phe Asn Glu Lys Asn Asp Val Ser Val Gln Gly Tyr Asn Gln Ile 155 160 165	953
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cat gtc att ttg aag att aaa gat gag acc tac ctg att aca acc ccg His Val Ile Leu Lys Ile Lys Asp Glu Thr Tyr Leu Ile Thr Thr Pro 185 190 195	1049
cct ttg cat atc gaa ggt att tta gtc gct tct cca ttt gtt gaa tta Pro Leu His Ile Glu Gly Ile Leu Val Ala Ser Pro Phe Val Glu Leu 200 205 210 215	1097
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gaa ttt tca gga agg ggg tat ttc aca ggg aag aag aac tcc ttt aag Glu Phe Ser Gly Arg Gly Tyr Phe Thr Gly Lys Lys Asn Ser Phe Lys 235 240 245	1193
gca aga att tac aga agc cca caa gag cat agt cat aaa gaa aat gcg Ala Arg Ile Tyr Arg Ser Pro Gln Glu His Ser His Lys Glu Asn Ala 250 255 260	1241
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Ile Ser Met Ile Lys Lys Thr Lys Glu Glu Leu Glu Asn Lys Gln Arg	
330 335 340	
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Trp Phe Lys Gln Val Asp Tyr Met Asn Glu Asn Thr Ser Asn Asp Val	
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Glu Lys Ala Ser Glu Asp Asp Ala Phe Arg Lys Leu Ala Ser Lys Leu	
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Gln Leu Ser Val Lys Asn Val Pro Ser Gly Thr Leu Ile Gly Gly Lys	
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Asp Asp Lys Lys Asp Val Ser Thr Ala Leu His Trp Arg Phe Asp Lys	
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Asn Leu Trp Met Arg Glu Asn Glu Ile Thr Ile	
425 430	
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<210> 7  
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 <212> DNA  
 <213> Glycine max

<220>  
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 <222> (1)...(291)  
 <223> Unsure at all n locations

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 accactcgcc ctgtgacttt tgggtgttgct ccttataatc ccantottgg tgagacacac 180  
 cncgtttcaa ggggaaatct taatgtgtta ttggagcaga tttcacatca ccctccagta 240  
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<210> 8  
 <211> 282  
 <212> DNA  
 <213> Glycine max

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<210> 9  
 <211> 255  
 <212> DNA  
 <213> Glycine max

<400> 9

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<210> 10  
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<212> DNA  
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<211> 283  
<212> DNA  
<213> Glycine max

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<400> 11

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<210> 13  
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 <212> DNA  
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<211> 399  
<212> DNA  
<213> Arabidopsis thaliana

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<211> 343  
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 <213> Arabidopsis thaliana

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 <211> 282  
 <212> DNA  
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<212> DNA  
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 <212> DNA  
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Ala Ser Ser Phe Phe Ile Ser Val Tyr Tyr Ala Tyr Gln Arg Thr Trp
          35          40          45
Lys Pro Phe Asn Pro Ile Leu Gly Glu Thr Tyr Glu Met Val Asn His
          50          55          60
Gly Gly Ile Thr Phe Ile Ser Glu Gln Val Ser His His Pro Pro Met
65          70          75          80
Ser Ala Gly His Ala Glu Thr Glu His Phe Thr Tyr Asp Val Thr Ser
          85          90          95
Lys Leu Lys Thr Lys Phe Leu Gly Asn Ser Val Asp Val Tyr Pro Val
          100          105          110
Gly Arg Thr Arg Val Thr Leu Lys Arg Asp Gly Val Val Leu Asp Leu
          115          120          125
Val Pro Pro Pro Thr Lys Val Ser Asn Leu Ile Phe Gly Arg Thr Trp
          130          135          140
Ile Asp Ser Pro Gly Glu Met Ile Leu Thr Asn Leu Thr Thr Gly Asp
145          150          155          160
Lys Val Val Leu Tyr Phe Gln Pro Cys Gly Trp Phe Gly Tyr Glu Val
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Gly Lys Trp Asn Glu Ala Met Asn Tyr Gln Val Cys Asp Ser Glu Gly  
195 200 205

Glu Pro Leu Pro Gly Thr Glu Leu Lys Glu Ile Trp Arg Val Ala Asp  
210 215 220

Thr Pro Lys Lys Asp Lys Phe Gln Tyr Thr His Phe Ala His Lys Ile  
225 230 235 240

Asn Ser Phe Asp Thr Ala Pro Lys Lys Leu Leu Ala Ser Asp Ser Arg  
245 250 255

Leu Arg Pro Asp Arg Met Ala Leu Glu Lys Gly Asp Leu Ser Thr Ser  
260 265 270

Gly Tyr Glu Lys Ser Ser Leu Glu Glu Arg Gln Arg Ala Glu Lys Arg  
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Asn Arg Glu Ala Lys Gly His Lys Phe Thr Pro Arg Trp Phe Asp Leu  
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Thr Asp Glu Val Thr Pro Thr Pro Trp Gly Asp Leu Glu Val Tyr Gln  
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Tyr Asn Gly Lys Tyr Thr Gln His Cys Ala Ala Val Asp Ser Ser Glu  
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35 40 45

Asn Val Leu Leu Glu Gln Ile Ser His His Pro Pro Val Thr Ala Leu  
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His Ala Thr Asp Glu Lys Glu Asn Ile Glu Met Leu Trp Cys Gln Arg

10030537 04302202

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	100			105		110
Cys Pro Arg Leu Leu Leu Arg Ile Leu Pro Val Pro Gly Ala Asp Trp						
	115			120		125
Ala Gly Thr Val Asn Ile Arg Cys Leu Glu Thr Gly Leu Val Ala Glu						
	130			135		140
Leu Ser Tyr Arg Ser Ser Ser Phe Leu Gly Ile Gly Gly Asn His Arg						
	145			150		155
Val Ile Lys Gly Lys Ile Leu Asp Ser Ser Ser Leu Lys Val Leu Tyr						
	165			170		175
Glu Val Asp Gly His Trp Asp Arg Thr Val Lys Val Lys Asp Thr Asn						
	180			185		190
Asn Gly Lys Val Arg Val Ile Tyr Asp Ala Lys Glu Val Met Ser Gly						
	195			200		205
Leu Glu Thr Pro Ile Leu Lys Asp Ile Glu Gly Val Trp Gln Thr Glu						
	210			215		220
Ser Ala His Val Trp Gly Glu Leu Asn Gln Ala Ile Val Ser Lys Asp						
	225			230		235
Trp Glu Lys Ala Arg Glu Ala Lys Leu Lys Val Glu Glu Arg Gln Arg						
	245			250		255
Glu Leu Val Arg Glu Arg Glu Ser Lys Gly Glu Thr Trp Ile Ser Lys						
	260			265		270
His Phe Val Val Ser Asn Asn Lys Glu Gly Trp Gln Cys Ser Pro Ile						
	275			280		285
His Lys Ser Val Pro Ala Ala Pro Ile Thr Ala Leu						
	290			295		300

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 <211> 355  
 <212> PRT  
 <213> Glycine max

<400> 32

Met Ala Glu Leu Met Glu Tyr Ser Tyr Leu Leu Asp Met Ala Asp Lys						
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Thr Glu Asp Pro Tyr Met Arg Leu Val Tyr Ala Ser Ser Phe Phe Ile						
	20			25		30

Ser	Val	Tyr	Tyr	Ala	Tyr	Gln	Arg	Thr	Trp	Lys	Pro	Phe	Asn	Pro	Ile
		35				40						45			
Leu	Gly	Glu	Thr	Tyr	Glu	Met	Val	Asn	His	Gly	Gly	Ile	Thr	Phe	Ile
	50					55					60				
Ser	Glu	Gln	Val	Ser	His	His	Pro	Pro	Met	Ser	Ala	Gly	His	Ala	Glu
65					70					75					80
Thr	Glu	His	Phe	Thr	Tyr	Asp	Val	Thr	Ser	Lys	Leu	Lys	Thr	Lys	Phe
				85					90					95	
Leu	Gly	Asn	Ser	Val	Asp	Val	Tyr	Pro	Val	Gly	Arg	Thr	Arg	Val	Thr
			100					105					110		
Leu	Lys	Arg	Asp	Gly	Val	Val	Leu	Asp	Leu	Val	Pro	Pro	Pro	Thr	Lys
		115					120					125			
Val	Ser	Asn	Leu	Ile	Phe	Gly	Arg	Thr	Trp	Ile	Asp	Ser	Pro	Gly	Glu
	130					135					140				
Met	Ile	Leu	Thr	Asn	Leu	Thr	Thr	Gly	Asp	Lys	Val	Val	Leu	Tyr	Phe
145					150					155					160
Gln	Pro	Cys	Gly	Trp	Phe	Gly	Ala	Gly	Arg	Tyr	Glu	Val	Asp	Gly	Tyr
				165					170					175	
Val	Tyr	Asn	Ser	Ala	Asp	Glu	Pro	Lys	Ile	Leu	Met	Thr	Gly	Lys	Trp
			180					185					190		
Asn	Glu	Ala	Met	Asn	Tyr	Gln	Val	Cys	Asp	Ser	Glu	Gly	Glu	Pro	Leu
		195					200					205			
Pro	Gly	Thr	Glu	Leu	Lys	Glu	Ile	Trp	Arg	Val	Ala	Asp	Thr	Pro	Lys
	210					215					220				
Lys	Asp	Lys	Phe	Gln	Tyr	Thr	His	Phe	Ala	His	Lys	Ile	Asn	Ser	Phe
225					230					235					240
Asp	Thr	Ala	Pro	Lys	Lys	Leu	Leu	Ala	Ser	Asp	Ser	Arg	Leu	Arg	Pro
				245					250					255	
Asp	Arg	Met	Ala	Leu	Glu	Lys	Gly	Asp	Leu	Ser	Thr	Ser	Gly	Tyr	Glu
			260					265					270		
Lys	Ser	Ser	Leu	Glu	Glu	Arg	Gln	Arg	Ala	Glu	Lys	Arg	Asn	Arg	Glu
		275					280					285			
Ala	Lys	Gly	His	Lys	Phe	Thr	Pro	Arg	Trp	Phe	Asp	Leu	Thr	Asp	Glu
	290					295					300				
Val	Thr	Pro	Thr	Pro	Trp	Gly	Asp	Leu	Glu	Val	Tyr	Gln	Tyr	Asn	Gly
305					310					315					320
Lys	Tyr	Thr	Gln	His	Cys	Ala	Ala	Val	Asp	Ser	Ser	Glu	Cys	Ile	Glu
				325					330					335	



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Val Pro Asp Ile Arg Pro Glu Phe Asn Pro Trp Gln Tyr Asp Asn Leu  
340 345 350

Asp Ala Glu  
355

<210> 33  
<211> 414  
<212> PRT  
<213> Zea mays

<400> 33

Met Ala Thr Lys Glu Glu Ala Ser Ala Val Pro Ala Ala Ser Lys Thr  
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Ser Trp Ser Ser Phe Leu Lys Ser Ile Ala Ser Phe Asn Gly Asp Leu  
20 25 30

Ser Ser Leu Thr Ala Pro Pro Phe Ile Leu Ser Thr Thr Ser Leu Thr  
35 40 45

Glu Tyr Ser Ala Tyr Trp Cys Glu His Pro Ala Leu Phe Val Ala Pro  
50 55 60

Ala Arg Glu Pro Asp Pro Ala Lys Arg Ala Leu Leu Val Leu Lys Trp  
65 70 75 80

Phe Leu Ser Thr Leu His Gln Gln Tyr Cys Ser Arg Ser Glu Lys Leu  
85 90 95

Gly Ser Glu Lys Lys Pro Leu Asn Pro Phe Leu Gly Glu Leu Phe Leu  
100 105 110

Gly Lys Trp Ile Glu Asp Glu Asp Val Gly Glu Thr Arg Leu Ile Ser  
115 120 125

Glu Gln Val Ser His His Pro Pro Ala Thr Ala Tyr Ser Ile Val Asn  
130 135 140

Glu Lys His Gly Val Glu Leu Gln Gly Tyr Asn Ala Gln Lys Ala Ser  
145 150 155 160

Phe Ser Ser Thr Ile Gln Val Lys Gln Leu Gly His Ala Tyr Leu Ser  
165 170 175

Leu Thr Pro Pro Gly Lys Asp Ala Asn Asn Glu Asp Asp Arg Glu His  
180 185 190

Tyr Leu Ile Thr Leu Pro Asn Leu His Ile Glu Ser Leu Ile Tyr Gly  
195 200 205

Thr Pro Phe Val Glu Leu Glu Lys Ser Cys Lys Ile Ala Ser Ser Thr  
210 215 220

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Gly Tyr Ile Ser Lys Ile Asp Phe Ser Gly Lys Gly Trp Leu Ser Gly  
 225 230 235 240

Lys Lys Asn Thr Phe Ser Ala Val Leu Tyr Lys Glu Ser Asp Gly Glu  
 245 250 255

Lys Asn Pro Leu Tyr Thr Ala Asp Gly Gln Trp Ser Ser Ser Phe Thr  
 260 265 270

Ile Arg Asp Ala Arg Ala Lys Lys Asp Ile Glu Thr Phe Thr Ile Ser  
 275 280 285

Asn Leu Lys Thr Thr Pro Leu Thr Val Ala Pro Leu Asp Glu Gln Asp  
 290 295 300

Glu Trp Glu Thr Arg Arg Ala Trp Arg Asp Val Ala Ala Ala Ile Glu  
 305 310 315 320

Arg Gly Asp Met Glu Ala Thr Ser Asn Ala Lys Thr Lys Ile Glu Val  
 325 330 335

Ala Gln Arg Glu Leu Arg Lys Lys Glu Lys Glu Gln Gly Glu Glu Trp  
 340 345 350

Glu Arg Arg Phe Phe Lys Arg Val Asn Glu Lys Asp Glu Pro Thr Phe  
 355 360 365

Met Arg Leu Ala Ala Met Leu Asp Leu Thr Gln Gly Ile Glu Ser Asp  
 370 375 380

Arg Thr Gly Gly Val Trp Arg Phe Asp Pro Ser Arg Ala Val Asp Ala  
 385 390 395 400

Asn Pro Pro Tyr His Lys Val Gly Gly Glu Gly Leu Gly Leu  
 405 410

<210> 34  
 <211> 434  
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<400> 34

Met Ser Gln His Ala Ser Ser Ser Ser Trp Thr Ser Phe Leu Lys Ser  
 1 5 10 15

Ile Ser Ser Phe Asn Gly Asp Leu Ser Ser Leu Ser Ala Pro Pro Phe  
 20 25 30

Ile Leu Ser Pro Thr Ser Leu Thr Glu Phe Ser Gln Tyr Trp Ala Glu  
 35 40 45

His Pro Ala Leu Phe Leu Glu Pro Ser Leu Ile Asp Gly Glu Asn Tyr  
 50 55 60

Lys Asp His Cys Pro Phe Asp Pro Asn Val Glu Ser Lys Glu Val Ala

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65		70		75		80
Gln Met Leu Ala Val Val Arg Trp Phe Ile Ser Thr Leu Arg Ser Gln						
		85		90		95
Tyr Cys Ser Arg Ser Glu Ser Met Gly Ser Glu Lys Lys Pro Leu Asn						
		100		105		110
Pro Phe Leu Gly Glu Val Phe Val Gly Lys Trp Lys Asn Asp Glu His						
		115		120		125
Pro Glu Phe Gly Glu Thr Val Leu Leu Ser Glu Gln Val Ser His His						
		130		135		140
Pro Pro Met Thr Ala Phe Ser Ile Phe Asn Glu Lys Asn Asp Val Ser						
		145		150		155
Val Gln Gly Tyr Asn Gln Ile Lys Thr Gly Phe Thr Lys Thr Leu Thr						
		165		170		175
Leu Thr Val Lys Pro Tyr Gly His Val Ile Leu Lys Ile Lys Asp Glu						
		180		185		190
Thr Tyr Leu Ile Thr Thr Pro Pro Leu His Ile Glu Gly Ile Leu Val						
		195		200		205
Ala Ser Pro Phe Val Glu Leu Gly Gly Arg Ser Phe Ile Gln Ser Ser						
		210		215		220
Asn Gly Met Leu Cys Val Ile Glu Phe Ser Gly Arg Gly Tyr Phe Thr						
		225		230		235
Gly Lys Lys Asn Ser Phe Lys Ala Arg Ile Tyr Arg Ser Pro Gln Glu						
		245		250		255
His Ser His Lys Glu Asn Ala Leu Tyr Leu Ile Ser Gly Gln Trp Ser						
		260		265		270
Gly Val Ser Thr Ile Ile Lys Lys Asp Ser Gln Val Ser His Gln Phe						
		275		280		285
Tyr Asp Ser Ser Glu Thr Pro Thr Glu His Leu Leu Val Lys Pro Ile						
		290		295		300
Glu Glu Gln His Pro Leu Glu Ser Arg Arg Ala Trp Lys Asp Val Ala						
		305		310		315
Glu Ala Ile Arg Gln Gly Asn Ile Ser Met Ile Lys Lys Thr Lys Glu						
		325		330		335
Glu Leu Glu Asn Lys Gln Arg Ala Leu Arg Glu Gln Glu Arg Val Lys						
		340		345		350
Gly Val Glu Trp Gln Arg Arg Trp Phe Lys Gln Val Asp Tyr Met Asn						
		355		360		365
Glu Asn Thr Ser Asn Asp Val Glu Lys Ala Ser Glu Asp Asp Ala Phe						

380

Thr Ile

# REPORT